**Florida Supplement to the 7th Edition (2020) FBC, Mechanical**

**ICC EDIT VERSION**

**Note 1**: Throughout the document, change International Building Code to Florida Building Code, Building; Energy Conservation Code tothe Florida Building Code, Energy Conservation; change the International Existing Building Code to Florida Building Code, Existing Building; change the International Fire code to Florida Fire Prevention Code; change International Fuel Gas Code to Florida Building Code, Fuel Gas; change the International Mechanical Code to Florida Building Code, Mechanical; change the International Plumbing Code to Florida Building Code, Plumbing; change the International Residential Code to Florida Building Code, Residential.

**PREFACE**

**……**

The model codes used for the Florida Building Code, 8th Edition (2023) include: the ~~2018~~ 2021 editions of the International Building Code®; the International Plumbing Code®; the International Mechanical Code®; the International Fuel Gas Code®; the International Residential Code®; the International Existing Building Code®; the International Energy Conservation Code®; the National Electrical Code, 20~~1720~~ edition; or substantive criteria from ASHRAE Standard 90.1-20~~16~~ 19. State and local codes adopted and incorporated into the code include the Florida Building Code, Accessibility, and special hurricane protection standards for the High-Velocity Hurricane Zone.

**……**

**Marginal Markings**

Solid vertical lines in the margins within the body of the code indicate a change from the requirements of the Florida Building Code, Fuel Gas, 7th Edition (20~~17~~20) to the Florida Building Code, Fuel Gas, 8th Edition (20~~20~~23) effective December 31, 20~~20~~23.

Sections deleted from the base code are designated “Reserved” in order to maintain the structure of the base code.

Chapter 1 **SCOPE AND ADMINISTRATION**

**SECTION 101**

**SCOPE AND GENERAL REQUIREMENTS**

(CA9156 / CCC-ADM1-19)

**Chapter 2 DEFINITIONS**

## SECTION 202 GENERAL DEFINITIONS

**Add new definition as follows:**

**BALANCED VENTILATION.** Any combination of concurrently operating mechanical exhaust and mechanical

supply whereby the total mechanical exhaust airflow rate is within 10 percent of the total mechanical supply airflow rate.

(M8467/M32-18 AMPC2)

**Add new definition as follows:**

**INDIRECT EVAPORATIVE COOLING.** The evaporative cooling process where water evaporates into a secondary air stream, removing heat from a primary air stream utilizing a heat exchanger.

**DIRECT EVAPORATIVE COOLING.**  The evaporative cooling process where water evaporates directly into the air stream, reducing the air's dry-bulb temperature and raising its humidity level.

(M8440/M2-18 AS)

**Revise as follows:**

**FLAMMABILITY CLASSIFICATION (REFRIGERANT).**~~Refrigerants shall be assigned to one of the three classes-1, 2 or 3-in accordance with ASHRAE 34. For Classes 2 and 3, the heat of combustion shall be calculated assuming that combustion products are in the gas phase and in their most stable state.~~ The alphabetical/numerical designation used to identify the flammability of refrigerants.

**Class 1.** Indicates a refrigerant with no flame propogation.

**Class 2.** Indicates a refrigerant with low flammability.

**Class 2L.** Indicates a refrigerant with low flammability and low burning velocity.

**Class 3.** Indicates a refrigerant with high flammability.

**REFRIGERANT SAFETY CLASSIFICATIONS.**~~Groupings~~The alphabetical/numerical designation that ~~indicate~~both the toxicity and flammability~~classes in accordance with Section 1103.1. The~~ ~~classification~~ classifications ~~group is made up of a letter (A or B) that indicates the toxicity class, followed by a number (1, 2 or 3) that indicates the flammability class. Refrigerant blends are similarly classified, based on the compositions at their worst cases of fractionation, as separately determined for toxicity and flammability. In some cases, the worst case of fractionation is the original formulation~~ of refrigerants.

Toxicity. See Toxicity classification (Refrigerant).

Flammability. See Flammability classification (Refrigerant).

**TOXICITY ~~CLASSIFICATION~~ CLASSIFICATION (REFRIGERANT).**~~Refrigerants shall be classified for toxicity in one of two classes in accordance with ASHRAE 34:~~ An ~~alphabetic~~ alphabetical  designation used to identify the toxicity of refrigerants. Class A indicates a refrigerant with lower toxicity. Class B indicates a refrigerant with higher toxicity.

(M8441/M4-18 AMPC1)

**Revise as follows:**

**PRESS-CONNECT JOINT.**  A permanent mechanical joint incorporating an elastomeric seal or an elastomeric seal and corrosion ~~-~~ resistant grip or bite ring. The joint is made with a pressing tool and jaw or ring approved by the fitting manufacturer.

(M8442/M5-18 AS)

**UNVENTED ALCOHOL FUEL BURNING DECORATIVE APPLIANCE**. A stationary, self-contained appliance intended to be directly or indirectly secured to a wall or floor and not intended for duct connection. Such appliance burns alcohol and is made in a manufacturing facility for subsequent delivery to the installation site.

(M8513/M85-18 AS)

Chapter 3 **GENERAL REGULATIONS**

**Revise as follows:**

**301.18 Seismic resistance.**Reserved.  ~~Where earthquake loads are applicable in accordance with the~~*~~Florida Building Code, Building~~*~~, mechanical system supports shall be designed and installed for the seismic forces in accordance with the~~*~~Florida Building Code, Building~~*~~.~~

**(M9996 AS)**

## 307.1 Fuel-burning appliances. Liquid combustion by-products of condensing appliances shall be collected and discharged to an approved plumbing fixture or disposal area in accordance with the manufacturer's installation instructions. Condensate piping shall be of approved corrosion-resistant material and shall not be smaller than the drain connection on the appliance. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one eighth unit vertical in 12 units horizontal (1-percent slope).

**Add new text as follows:**

**307.1.1 Identification.** The termination of concealed condensate piping shall be marked to indicate whether the

piping is connected to the primary or secondary drain.

**307.2.3.3 Identification.** The termination of concealed condensate piping shall be marked to indicate whether

the piping is connected to the primary or secondary drain.

(M8444/M10-18 AM)

**Add new text as follows:**

## 307.2.1.1 (IPC [M] 314.2.1.1) Condesate discharge. Condensate drains shall not directly connect to any plumbing drain, waste or vent pipe. Condensate drains shall not discharge into a plumbing fixture other than a floor sink, floor drain, trench drain, mop sink, hub drain, standpipe, utility sink or laundry sink. Condensate drain connections to a lavatory wye branch tailpiece or to a bathtub overflow pipe, shall not be considered as discharging to a plumbing fixture. Except where discharging to grade outdoors, the point of discharge of condensate drains shall be located within the same occupancy, tenant space or dwelling unit as the source of the condensate.

(M8445/M11-18 AS)

**Revise as follows:**

## 307.2.2 Drain pipe materials and sizes. Components of the condensate disposal system shall be ABS, cast iron~~, galvanized steel~~, copper ~~,~~ and copper alloy, CPVC, cross-linked polyethylene, galvanized steel, PE-RT, polyethylene, ~~ABS~~ polypropylene, ~~CPVC,~~ PVC ~~,~~ or ~~polypropylene~~ PVDF pipe or tubing. Components shall be selected for the pressure and temperature rating of the installation. Joints and connections shall be made in accordance with the applicable provisions of Chapter 7 of the International Plumbing Code relative to the material type. Condensate waste and drain line size shall be not less than 3/4-inch pipe size ~~internal diameter~~ and shall not decrease in size from the drain pan connection to the place of condensate disposal. Where the drain pipes from more than one unit are manifolded together for condensate drainage, the pipe or tubing shall be sized in accordance with Table 307.2.2.

(M8446/M14-18 AS)

**CHAPTER 4 VENTILATION**

**Revise as follows:**

## 401.4 Intake opening location. Air intake openings shall comply with all of the following:

1. Intake openings shall be located not less than 10 feet (3048 mm) from lot lines or buildings on the same lot.

2. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) horizontally from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots and loading docks, except as specified in Item 3 or Section 501.3.1. Outdoor air intake openings shall be permitted to be located less than 10 feet (3048 mm) horizontally from streets, alleys, parking lots and loading docks provided that the openings are located not less than 25 feet (7620 mm) vertically above such locations. Where openings front on a street or public way, the distance shall be measured from the closest edge of the street or public way.

3. Intake openings shall be located not less than 3 feet (914 mm) below contaminant sources where such sources are located within 10 feet (3048 mm) of the opening. Separation is not required between intake air openings and living space exhaust air openings of an individual dwelling unit or sleeping unit where an approved factory-built intake/exhaust combination termination fitting is used to separate the air streams in accordance with the manufacturer's instructions.

4. Intake openings on structures in flood hazard areas shall be at or above the elevation required by Section 1612 of the International Building Code for utilities and attendant equipment.

(M8447/M17-18 AS)

**Revise as follows:**

## SECTION 403 MECHANICAL VENTILATION

## 403.2.1 Recirculation of air. The outdoor air required by Section 403.3 shall not be recirculated. Air in excess of that required by Section 403.3 shall not be prohibited from being recirculated as a component of supply air to building spaces, except that:

1. Ventilation air shall not be recirculated from one dwelling to another or to dissimilar occupancies.

2. Supply air to a swimming pool and associated deck areas shall not be recirculated unless such air is dehumidified to maintain the relative humidity of the area at 60 percent or less. Air from this area shall not be recirculated to other spaces where more than 10 percent of the resulting supply airstream consists of air recirculated from these spaces. The design and installation of dehumidification systems shall comply with ACCA Manual SPS, HVAC Design for Swimming Pools and Spas.

3. Where mechanical exhaust is required by Note b in Table 403.3.1.1, recirculation of air from such spaces shall be prohibited. Recirculation of air that is contained completely within such spaces shall not be prohibited. Where recirculation of air is prohibited, all air supplied to such spaces shall be exhausted, including any air in excess of that required by Table 403.3.1.1.

4. Where mechanical exhaust is required by Note g in Table 403.3.1.1, mechanical exhaust is required and recirculation from such spaces is prohibited where more than 10 percent of the resulting supply air-stream consists of air recirculated from these spaces. Recirculation of air that is contained completely within such spaces shall not be prohibited.

(M8448/M18-18 AS)

**Revise as follows:**

**TABLE 403.3.1.1**

**MINIMUM VENTILATION RATES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **OCCUPANCY CLASSIFICATION** | **OCCUPANT DENSITY #/1000 FT2 a** | **PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, Rp CFM/PERSON** | **AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, Ra CFM/FT2 a** | **EXHAUST AIRFLOW RATE CFM/FT2 a** |
| Correctional facilities |   |   |   |   |
| Booking/waiting | 50 | 7.5 | 0.06 | — |
| Cells |   |   |   |   |
| without plumbing fixtures | 25 | 5 | 0.12 | — |
| with plumbing fixturesg | 25 | 5 | 0.12 | 1 |
| Day room | 30 | 5 | 0.06 | — |
| Dining halls (see “Food and beverage service”) | — | — | — | — |
| Guard stations | 15 | 5 | 0.06 | — |
| Dry cleaners, laundries |   |   |   |   |
| Coin-operated dry cleaner | 20 | 15 | — | — |
|   |   |   |   |   |
| Commercial dry cleaner | 30 | 30 | — | — |
| Commercial laundry | 10 | 25 | — | — |
| Storage, pick up | 30 | 7.5 | 0.12 | — |
| Education |   |   |   |   |
| Art classroomg | 20 | 10 | 0.18 | 0.7 |
| Auditoriums | 150 | 5 | 0.06 | — |
| Classrooms (ages 5-8) | 25 | 10 | 0.12 | — |
| Classrooms (age 9 plus) | 35 | 10 | 0.12 | — |
| Computer lab | 25 | 10 | 0.12 | — |
| Corridors (see “Public spaces”) | — | — | — | — |
| Day care (through age 4) | 25 | 10 | 0.18 | — |
| Lecture classroom | 65 | 7.5 | 0.06 | — |
| Lecture hall (fixed seats) | 150 | 7.5 | 0.06 | — |
| Locker/dressing roomsg | — | — | — | 0.25 |
| Media center | 25 | 10 | 0.12 | — |
| Multiuse assembly | 100 | 7.5 | 0.06 | — |
| Music/theater/dance | 35 | 10 | 0.06 | — |
| Science laboratoriesg | 25 | 10 | 0.18 | 1 |
| Smoking loungesb | 70 | 60 | — | — |
| Sports locker roomsg | — | — | — | 0.5 |
| Wood/metal shopsg | 20 | 10 | 0.18 | 0.5 |
| Food and beverage service |   |   |   |   |
| Bars, cocktail lounges | 100 | 7.5 | 0.18 | — |
| Cafeteria, fast food | 100 | 7.5 | 0.18 | — |
| Dining rooms | 70 | 7.5 | 0.18 | — |
| b |   |   |   |   |
| Hotels, motels, resorts and dormitories |   |   |   |   |
| Bathrooms/toilet—privateg | — | — | — | 25/50f |
| Bedroom/living room | 10 | 5 | 0.06 | — |
| Conference/meeting | 50 | 5 | 0.06 | — |
| Dormitory sleeping areas | 20 | 5 | 0.06 | — |
| Gambling casinos | 120 | 7.5 | 0.18 | — |
| Lobbies/prefunction | 30 | 7.5 | 0.06 | — |
| Multipurpose assembly | 120 | 5 | 0.06 | — |
| Offices |   |   |   |   |
| Conference rooms | 50 | 5 | 0.06 | — |
| Main entry lobbies | 10 | 5 | 0.06 | — |
| Office spaces | 5 | 5 | 0.06 | — |
| Reception areas | 30 | 5 | 0.06 | — |
| Telephone/data entry | 60 | 5 | 0.06 | — |
| Private dwellings, single and multiple |   |   |   |   |
| Garages, common for multiple unitsb | — | — | — | 0.75 |
| Kitchensb | — | — | — | 25/100f |
| Living areasc | Based on number of bedrooms. First bedroom, 2; each additional bedroom, 1 | 0.35 ACH but not less than 15 cfm/person | — | — |
| Toilet rooms and bathroomsg | — | — | — | 20/50f |
| Public spaces |   |   |   |   |
| Corridors | — | — | 0.06 | — |
| Courtrooms | 70 | 5 | 0.06 | — |
| Elevator car | — | — | — | 1 |
| Legislative chambers | 50 | 5 | 0.06 | — |
| Libraries | 10 | 5 | 0.12 | — |
| Museums (children’s) | 40 | 7.5 | 0.12 | — |
| Museums/galleries | 40 | 7.5 | 0.06 | — |
| Places of religious worship | 120 | 5 | 0.06 | — |
| Shower room (per shower head)g | — | — | — | 50/20f |
| Smoking loungesb | 70 | 60 | — | — |
| Toilet rooms — publicg | — | — | — | 50/70e |
| Retail stores, sales floors and showroom floors |   |   |   |   |
| Dressing rooms | — | — | — | 0.25 |
| Mall common areas | 40 | 7.5 | 0.06 | — |
| Sales | 15 | 7.5 | 0.12 | — |
|   |   |   |   |   |
| Smoking loungesb | 70 | 60 | — | — |
| Storage rooms | — | — | 0.12 | — |
|   |   |   |   |   |
| Specialty shops |   |   |   |   |
| Automotive motor-fuel dispensing stationsb | — | — | — | 1.5 |
| Barber | 25 | 7.5 | 0.06 | 0.5 |
| Beauty salonsb | 25 | 20 | 0.12 | 0.6 |
| Nail salonsb, h | 25 | 20 | 0.12 | 0.6 |
| Embalming roomb | — | — | — | 2 |
| Pet shops (animal areas)b | 10 | 7.5 | 0.18 | 0.9 |
| Supermarkets | 8 | 7.5 | 0.06 | — |
| Sports and amusement |   |   |   |   |
| Bowling alleys (seating areas) | 40 | 10 | 0.12 | — |
| Disco/dance floors | 100 | 20 | 0.06 | — |
| Game arcades | 20 | 7.5 | 0.18 | — |
|   |   |   |   |   |
| Health club/aerobics room | 40 | 20 | 0.06 | — |
| Health club/weight room | 10 | 20 | 0.06 | — |
| Ice arenas without combustion engines | — | — | 0.3 | 0.5 |
| Spectator areas | 150 | 7.5 | 0.06 | — |
| Swimming pools (pool and deck area) | — | — | 0.48 | — |
| Storage |   |   |   |   |
| Repair garages, enclosed parking garagesb,d | — | — | — | 0.75 |
|   |   |   |   |   |
| Warehouses | — | 10 | 0.06 | — |
| Theaters |   |   |   |   |
| Auditoriums (see “Education”) | — | — | — | — |
|   |   |   |   |   |
|   |   |   |   |   |
| Ticket booths | 60 | 5 | 0.06 | — |
| Transportation |   |   |   |   |
| Platforms | 100 | 7.5 | 0.06 | — |
| Transportation waiting | 100 | 7.5 | 0.06 | — |
| Workrooms |   |   |   |   |
| Bank vaults/safe deposit | 5 | 5 | 0.06 | — |
| Computer (without printing) | 4 | 5 | 0.06 | — |
| Copy, printing rooms | 4 | 5 | 0.06 | 0.5 |
| Darkrooms | — | — | — | 1 |
| Meat processingc | 10 | 15 | — | — |
| Pharmacy (prep. area) | 10 | 5 | 0.18 | — |
| Photo studios | 10 | 5 | 0.12 | — |

For SI: 1 cubic foot per minute = 0.0004719 m3/s, 1 ton = 908 kg, 1 cubic foot per minute per square foot = 0.00508 m3/(s • m2), °C = [(°F) -32]/1.8, 1 square foot = 0.0929 m2.

a. Based on net occupiable floor area.

b. Mechanical exhaust required and the recirculation of air from such spaces is prohibited. Recirculation of air that is contained completely within such spaces shall not be prohibited (see Section 403.2.1, Item 3).

c. Spaces unheated or maintained below 50°F are not covered by these requirements unless the occupancy is continuous.

d. Ventilation systems in enclosed parking garages shall comply with Section 404.

e. Rates are per water closet or urinal. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

f. Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

g. Mechanical exhaust is required and recirculation from such spaces is ~~prohibited except that recirculation shall be permitted where the resulting supply airstream consists of not more than 10 percent air recirculated from these spaces~~ prohibited. For occupancies other than science laboratories, where there is a wheel type energy recovery ventilation (ERV) unit in the exhaust system design, the volume of air leaked from the exhaust airstream into the outdoor airstream within the ERV shall be less than 10 percent of the outdoor air volume. Recirculation of air that is contained completely within such spaces shall not be prohibited (see Section 403.2.1, Items 2 and 4).

h. For nail salons, each manicure and pedicure station shall be provided with a source capture system capable of exhausting not less than 50 cfm per station. Exhaust inlets shall be located in accordance with Section 502.20. Where one or more required source capture systems operate continuously during occupancy, the exhaust rate from such systems shall be permitted to be applied to the exhaust flow rate required by Table 403.3.1.1 for the nail salon.

(M8451/M24-18 AS)

**Revise as follows:**

**TABLE 403.3.1.1**

**MINIMUM VENTILATION RATES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **OCCUPANCY CLASSIFICATION** | **OCCUPANT DENSITY #/1000 FT2 a** | **PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE, *Rp* CFM/PERSON** | **AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE, *Ra* CFM/FT2 a** | **EXHAUST AIRFLOW RATE CFM/FT2 a** |
| **Correctional facilities** |   |   |   |   |
| Booking/waiting | 50 | 7.5 | 0.06 | — |
| Cells |   |   |   |   |
| without plumbing fixtures | 25 | 5 | 0.12 | — |
| with plumbing fixturesg | 25 | 5 | 0.12 | 1 |
| Day room | 30 | 5 | 0.06 | — |
| Dining halls (see “Food and beverage service”) | — | — | — | — |
| Guard stations | 15 | 5 | 0.06 | — |
| **Dry cleaners, laundries** |   |   |   |   |
| Coin-operated dry cleaner | 20 | 15 | — | — |
| Coin-operated laundries | 20 | 7.5 | 0.12 | — |
| Commercial dry cleaner | 30 | 30 | — | — |
| Commercial laundry | 10 | ~~25~~ 5 | ~~—~~ 0.12 | — |
| Storage, pick up | 30 | 7.5 | 0.12 | — |
| **Education** |   |   |   |   |
| Art classroomg | 20 | 10 | 0.18 | 0.7 |
| Auditoriums | 150 | 5 | 0.06 | — |
| Classrooms (ages 5-8) | 25 | 10 | 0.12 | — |
| Classrooms (age 9 plus) | 35 | 10 | 0.12 | — |
| Computer lab | 25 | 10 | 0.12 | — |
| Corridors (see “Public spaces”) | — | — | — | — |
| Day care (through age 4) | 25 | 10 | 0.18 | — |
| Lecture classroom | 65 | 7.5 | 0.06 | — |
| Lecture hall (fixed seats) | 150 | 7.5 | 0.06 | — |
| Locker/dressing roomsg | — | — | — | 0.25 |
| Media center | 25 | 10 | 0.12 | — |
| Multiuse assembly | 100 | 7.5 | 0.06 | — |
| Music/theater/dance | 35 | 10 | 0.06 | — |
| Science laboratoriesg | 25 | 10 | 0.18 | 1 |
| Smoking loungesb | 70 | 60 | — | — |
| Sports locker roomsg | — | — | — | 0.5 |
| Wood/metal shopsg | 20 | 10 | 0.18 | 0.5 |
| **Food and beverage service** |   |   |   |   |
| Bars, cocktail lounges | 100 | 7.5 | 0.18 | — |
| Cafeteria, fast food | 100 | 7.5 | 0.18 | — |
| Dining rooms | 70 | 7.5 | 0.18 | — |
| Kitchens (cooking)b | 20 | 7.5 | 0.12 | 0.7 |
| **Hotels, motels, resorts and dormitories** |   |   |   |   |
| Bathrooms/toilet—privateg | — | — | — | 25/50f |
| Bedroom/living room | 10 | 5 | 0.06 | — |
| Conference/meeting | 50 | 5 | 0.06 | — |
| Dormitory sleeping areas | 20 | 5 | 0.06 | — |
| Gambling casinos | 120 | 7.5 | 0.18 | — |
| Lobbies/prefunction | 30 | 7.5 | 0.06 | — |
| Multipurpose assembly | 120 | 5 | 0.06 | — |
| **Offices** |   |   |   |   |
| Conference rooms | 50 | 5 | 0.06 | — |
| Main entry lobbies | 10 | 5 | 0.06 | — |
| Office spaces | 5 | 5 | 0.06 | — |
| Reception areas | 30 | 5 | 0.06 | — |
| Telephone/data entry | 60 | 5 | 0.06 | — |
| **Private dwellings, single and multiple** |   |   |   |   |
| Garages, common for multiple unitsb | — | — | — | 0.75 |
| Kitchensb | — | — | — | ~~25~~ 50/100f |
| Living areasc | Based on number of bedrooms. First bedroom, 2; each additional bedroom, 1 | 0.35 ACH but not less than 15 cfm/person | — | — |
| Toilet rooms and bathroomsg | — | — | — | ~~20~~ 25/50f |
| **Public spaces** |   |   |   |   |
| Corridors | — | — | 0.06 | — |
| Courtrooms | 70 | 5 | 0.06 | — |
| Elevator car | — | — | — | 1 |
| Legislative chambers | 50 | 5 | 0.06 | — |
| Libraries | 10 | 5 | 0.12 | — |
| Museums (children’s) | 40 | 7.5 | 0.12 | — |
| Museums/galleries | 40 | 7.5 | 0.06 | — |
| Places of religious worship | 120 | 5 | 0.06 | — |
| Shower room (per shower head)g | — | — | — | 50/20f |
| Smoking loungesb | 70 | 60 | — | — |
| Toilet rooms — publicg | — | — | — | 50/70e |
| **Retail stores, sales floors and showroom floors** |   |   |   |   |
| Dressing rooms | — | — | — | 0.25 |
| Mall common areas | 40 | 7.5 | 0.06 | — |
| Sales | 15 | 7.5 | 0.12 | — |
| Shipping and receiving | 2 | 10 | 0.12 | — |
| Smoking loungesb | 70 | 60 | — | — |
| Storage rooms | — | — | 0.12 | — |
| Warehouses (see “Storage”) | — | 10 | 0.06 | — |
| **Specialty shops** |   |   |   |   |
| Automotive motor-fuel dispensing stationsb | — | — | — | 1.5 |
| Barber | 25 | 7.5 | 0.06 | 0.5 |
| Beauty salonsb | 25 | 20 | 0.12 | 0.6 |
| Nail salonsb, h | 25 | 20 | 0.12 | 0.6 |
| Embalming roomb | — | — | — | 2 |
| Pet shops (animal areas)b | 10 | 7.5 | 0.18 | 0.9 |
| Supermarkets | 8 | 7.5 | 0.06 | — |
| **Sports and amusement** |   |   |   |   |
| Bowling alleys (seating areas) | 40 | 10 | 0.12 | — |
| Disco/dance floors | 100 | 20 | 0.06 | — |
| Game arcades | 20 | 7.5 | 0.18 | — |
| Gym, stadium, arena (play area) | 7 | 20 | 0.18 | — |
| Health club/aerobics room | 40 | 20 | 0.06 | — |
| Health club/weight room | 10 | 20 | 0.06 | — |
| Ice arenas without combustion engines | — | — | 0.3 | 0.5 |
| Spectator areas | 150 | 7.5 | 0.06 | — |
| Swimming pools (pool and deck area) | — | — | 0.48 | — |
| **Storage** |   |   |   |   |
| Repair garages, enclosed parking garagesb,d | — | — | — | 0.75 |
| Refrigerated warehouses/freezers | — | 10 | — | ~~0.75~~ |
| Warehouses | — | 10 | 0.06 | — |
| **Theaters** |   |   |   |   |
| Auditoriums (see “Education”) | — | — | — | — |
| Lobbies | 150 | 5 | 0.06 | — |
| Stages, studios | 70 | 10 | 0.06 | — |
| Ticket booths | 60 | 5 | 0.06 | — |
| **Transportation** |   |   |   |   |
| Platforms | 100 | 7.5 | 0.06 | — |
| Transportation waiting | 100 | 7.5 | 0.06 | — |
| **Workrooms** |   |   |   |   |
| Bank vaults/safe deposit | 5 | 5 | 0.06 | — |
| Computer (without printing) | 4 | 5 | 0.06 | — |
| Copy, printing rooms | 4 | 5 | 0.06 | 0.5 |
| Darkrooms | — | — | — | 1 |
| Meat processingc | 10 | 15 | — | — |
| Pharmacy (prep. area) | 10 | 5 | 0.18 | — |
| Photo studios | 10 | 5 | 0.12 | — |

For SI: 1 cubic foot per minute = 0.0004719 m3/s, 1 ton = 908 kg, 1 cubic foot per minute per square foot = 0.00508 m3/(s • m2), °C = [(°F) -32]/1.8, 1 square foot = 0.0929 m2.

a. Based on net occupiable floor area.

b. Mechanical exhaust required and the recirculation of air from such spaces is prohibited. Recirculation of air that is contained completely within such spaces shall not be prohibited (see Section 403.2.1, Item 3).

c. Spaces unheated or maintained below 50°F are not covered by these requirements unless the occupancy is continuous.

d. Ventilation systems in enclosed parking garages shall comply with Section 404.

e. Rates are per water closet or urinal. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

f. Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

g.. Mechanical exhaust is required and recirculation from such spaces is prohibited except that recirculation shall be permitted where the resulting supply airstream consists of not more than 10 percent air recirculated from these spaces. Recirculation of air that is contained completely within such spaces shall not be prohibited (see Section 403.2.1, Items 2 and 4).

h. For nail salons, each manicure and pedicure station shall be provided with a source capture system capable of exhausting not less than 50 cfm per station. Exhaust inlets shall be located in accordance with Section 502.20. Where one or more required source capture systems operate continuously during occupancy, the exhaust rate from such systems shall be permitted to be applied to the exhaust flow rate required by Table 403.3.1.1 for the nail salon.

(M8452/M25-18 AS) Pulled of consent

**Revise as follows:**

## 403.3.2.4 Ventilating equipment. ~~Exhaust equipment serving single dwelling units~~ Fans providing exhaust or outdoor air shall be listed and labeled to provide the minimum required air flow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51.

(M8455/M28-18 AS)

**Delete without substitution:**

## ~~403.3.1.5 Balancing. The~~ *~~ventilation~~* ~~air distribution system shall be provided with means to adjust the system to achieve not less than the minimum ventilation airflow rate as required by Sections 403.3 and 403.3.1.2. Ventilation systems shall be balanced by an~~ *~~approved~~* ~~method. Such balancing shall verify that the ventilation system is capable of supplying and exhausting the airflow rates required by Sections 403.3 and 403.3.1.2.~~

(M8457/M29-18 AS)

**403.3.2.1 Outdoor air for dwelling units.**An outdoor air ventilation system consisting of a mechanical exhaust system, supply system or combination thereof shall be installed for each dwelling unit. Local exhaust or supply systems, including outdoor air ducts connected to the return side of an air handler, are permitted to serve as such a system. The outdoor air ventilation system shall be designed to provide the required rate of outdoor air continuously during the period that the building is occupied. The minimum continuous outdoor airflow rate shall be determined in accordance with Equation 4-9.

QOA=0.01Afloor+7.5(Nbr +1) **(Equation 4-9)**

where:

QOA  = outdoor airflow rate, cfm

Afloor  =  ~~conditioned~~ floor area, ft2

Nbr  = number of bedrooms; not to be less than one

**Exceptions:**

1. The outdoor air ventilation system is not required to operate continuously where the system has controls that enable operation for not less than 1 hour of each 4-hour period. The average outdoor air flow rate over the 4-hour period shall be not less than that prescribed by Equation 4-9..

2. The minimum mechanical ventilation rate determined in accordance with Equation 4.9 shall be reduced ~~by 25%~~ by 30%, provided that ~~all~~both of the following conditions apply:

2.1. A ducted system supplies ~~recirculated~~ ventilation air directly to each bedroom and ~~the largest common area.~~

~~2.2. For continuously operating systems, not less than 70% of the air volume in the conditioned space is recirculated each hour through the ducted system, or for intermittently operated systems, an equivalent air recirculation is provided during each four-hour period~~ to one or more of the following rooms:

2.1.1. Living room

2.1.2. Dining room

2.1.3. Kitchen.

2.2.~~2.3.~~ The whole-house ventilation system is a balanced ventilation system.

 (M8467/M32-18 AMPC2)

**Revise as follows:**

## 407.1 General. Mechanical ventilation for ambulatory care facilities and Group I-2 occupancies shall be designed and installed in accordance with this code and ASHRAE 170~~.~~ and NFPA 99.

(M8461/M31-18 AS)

**CHAPTER 5 EXHAUST SYSTEMS**

## 501.3.1 Location of exhaust outlets. The termination point of exhaust outlets and ducts discharging to the outdoors shall be located with the following minimum distances:

1. For ducts conveying explosive or flammable vapors, fumes or dusts: 30 feet (9144 mm) from property lines; 10 feet (3048 mm) from operable openings into buildings; 6 feet (1829 mm) from exterior walls and roofs; 30 feet (9144 mm) from combustible walls and operable openings into buildings that are in the direction of the exhaust discharge; 10 feet (3048 mm) above adjoining grade.

2. For other product-conveying outlets: 10 feet (3048 mm) from the property lines; 3 feet (914 mm) from exterior walls and roofs; 10 feet (3048 mm) from operable openings into buildings; 10 feet (3048 mm) above adjoining grade.

3. For all environmental air exhaust: 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable openings into buildings for all occupancies other than Group U, and 10 feet (3048 mm) from mechanical air intakes. Such exhaust shall not be considered hazardous or noxious. Separation is not required between intake air openings and living space exhaust air openings of an individual dwelling unit or sleeping unit where an approved factory-built intake/exhaust combination termination fitting is used to separate the air streams in accordance with the manufacturer's instructions.

4. Exhaust outlets serving structures in flood hazard areas shall be installed at or above the elevation required by Section 1612 of the International Building Code for utilities and attendant equipment.

5. For specific systems, see the following sections:

5.1. Clothes dryer exhaust, Section 504.4.

5.2. Kitchen hoods and other kitchen exhaust equipment, Sections 506.3.13, 506.4 and 506.5.

5.3. Dust, stock and refuse conveying systems, Section 511.2.

5.4. Subslab soil exhaust systems, Section 512.4.

5.5. Smoke control systems, Section 513.10.3.

5.6. Refrigerant discharge, Section 1105.7.

5.7. Machinery room discharge, Section 1105.6.1.

(M8447/M17-18 AS)

**Revise as follows:**

**~~[F]~~502.9.5 Flammable and combustible liquids.** Exhaust ventilation systems shall be provided as required by Sections 502.9.5.1 through 502.9.5.5 for the storage, use, dispensing, mixing and handling of flammable and combustible liquids. Unless otherwise specified, this section shall apply to any quantity of flammable and combustible liquids.

**~~Exception~~Exceptions:**

1. This section shall not apply to flammable and combustible liquids that are exempt from the International Fire Code.

2. The storage of beer, distilled spirits and wines in barrels and casks conforming to the

requirements of the International Fire Code.

(M9829/F276-18 AS)

##

## 502.20 Manicure and pedicure stations. Manicure and pedicure stations shall be provided with an exhaust system in accordance with Table 403.3.1.1, Note h. Manicure tables and pedicure stations not provided with factory-installed exhaust inlets shall be provided with exhaust inlets located not more than 12 inches (305 mm) horizontally and vertically from the point of chemical application.

**Add new text as follows:**

## 502.20.1 Operation. The exhaust system for manicure and pedicure stations shall have controls that operate the system continuously when the space is occupied.

(M8472/M35-18 AS)

**506.3.3 Grease duct supports.**Grease duct bracing and supports shall be of noncombustible material securely attached to the structure and designed to carry gravity ~~and seismic~~ loads within the stress limitations of the *Florida Building Code, Building*. Bolts, screws, rivets and other mechanical fasteners shall not penetrate duct walls.

**(M9997 AS)**

## 507.1 General. Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. A Type I or Type II hood shall be installed at or above appliances in accordance with Sections 507.2 and 507.3. Where any cooking appliance under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust equipment and makeup air system shall comply with the requirements of Sections 506, 507, 508 and 509.

**Exceptions:**

1. Factory-built commercial exhaust hoods that are listed and labeled in accordance with UL 710, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5.

2. Factory-built commercial cooking recirculating systems that are listed and labeled in accordance with UL 710B, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1. For the purpose of determining the floor area required to be ventilated, each individual appliance shall be considered as occupying not less than 100 square feet (9.3 m2).

3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application in accordance with NFPA 96, a hood shall not be required at or above them.

4. Smoker ovens with integral exhaust systems provided that the appliance is installed in accordance with the manufacturer's installation instructions, is listed and tested for the application and complies with Chapter 5

(M8478/M45-18 AS)

**Revise as follows:**

## 507.1 General. Commercial kitchen exhaust hoods shall comply with the requirements of this section. Hoods shall be Type I or II and shall be designed to capture and confine cooking vapors and residues. A Type I or Type II hood shall be installed at or above appliances in accordance with Sections 507.2 and 507.3. Where any cooking appliance under a single hood requires a Type I hood, a Type I hood shall be installed. Where a Type II hood is required, a Type I or Type II hood shall be installed. Where a Type I hood is installed, the installation of the entire system, including the hood, ducts, exhaust equipment and makeup air system shall comply with the requirements of Sections 506, 507, 508 and 509.

**Exceptions:**

1. Factory-built commercial exhaust hoods that are listed and labeled in accordance with UL 710, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5.

2. Factory-built commercial cooking recirculating systems that are listed and labeled in accordance with UL 710B, and installed in accordance with Section 304.1, shall not be required to comply with Sections 507.1.5, 507.2.3, 507.2.5, 507.2.8, 507.3.1, 507.3.3, 507.4 and 507.5. Spaces in which such systems are located shall be considered to be kitchens and shall be ventilated in accordance with Table 403.3.1.1. For the purpose of determining the floor area required to be ventilated, each individual appliance shall be considered as occupying not less than 100 square feet (9.3 m2).

3. Where cooking appliances are equipped with integral down-draft exhaust systems and such appliances and exhaust systems are listed and labeled for the application in accordance with NFPA 96, a hood shall not be required at or above them.

4. Smoker ovens with integral exhaust systems provided that the appliance is installed in accordance with the manufacturer's installation instructions, is listed and tested for the application and complies with Chapter 5

(M8479/M46-18)

507.2Type I hoods.

Type I hoods shall be installed where cooking appliances produce grease or smoke as a result of the cooking process. Type I hoods shall be installed over medium-duty, heavy-duty and extra-heavy-duty cooking appliances.

Exceptions:

1. A Type I hood shall not be required for an electric cooking appliance where an approved testing agency provides documentation that the appliance effluent contains 5 mg/m3 or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m3/s) in accordance with UL 710B.
2. A Type I hood shall not be required for solid fuel or combination gas and solid fuel pizza ovens if the oven is tested and listed using direct venting as allowed in NFPA 96. The venting system shall be constructed and installed per the conditions of listing of the oven and of the duct or chimney used for venting. This applies to pizza ovens listed with natural draft or forced draft venting.

**(M10381 AS)**

**Revise as follows:**

## 506.3.9 Grease duct horizontal cleanouts. Cleanouts serving horizontal sections of grease ducts shall:

1. Be spaced not more than 20 feet (6096 mm) apart.

2. Be located not more than 10 feet (3048 mm) from changes in direction that are greater than 45 degrees (0.79 rad).

3. Be located on the bottom only where other locations are not available and shall be provided with internal damming of the opening such that grease will flow past the opening without pooling. Bottom cleanouts and openings shall be approved for the application and installed liquid-tight.

4. Not be closer than 1 inch (25 mm) from the edges of the duct.

5. Have opening dimensions of not less than 12 inches by 12 inches (305 mm by 305 mm). Where such dimensions preclude installation, the opening shall be not less than 12 inches (305 mm) on one side and shall be large enough to provide access for cleaning and maintenance.

6. ~~Shall be~~ Be located at grease reservoirs.

7. Be located within 3 feet of horizontal discharge fans.

(M8484/M47-18 AS)

**Revise as follows:**

## 506.5.2 Pollution-control units. The installation of pollution-control units shall be in accordance with ~~the manufacturer's installation instructions and~~ all of the following:

1. Pollution-control units shall be listed and labeled in accordance with UL ~~1978~~ 8782.

2. Fans serving pollution-control units shall be listed and labeled in accordance with UL 762.

3. ~~Pollution~~Bracing and supports for pollution-control units shall be ~~mounted and secured in accordance with the manufacturer's installation instructions and~~ of noncombustible material securely attached to the structure and designed to carry gravity and seismic loads within the stress limitations of the International Building Code.

4. Pollution-control units located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a pollution control unit, such unit shall be ~~located in a room or space~~ listed and labeled, in accordance with UL 2221 or ASTM E2336, for location in an enclosure having the same fire-resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.

5. ~~A clearance of not less than 18 inches (457 mm)~~ Clearances shall be maintained between the pollution-control unit and combustible material in accordance with the listing.

6. Roof-mounted pollution-control units shall be listed for outdoor installation and shall be mounted not less than 18 inches (457 mm) above the roof.

7. Exhaust outlets for pollution-control units shall be in accordance with Section 506.3.13.

8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a pollution-control unit. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.

9. Pollution-control units shall be provided with a factory-installed fire suppression system.

10. Service space shall be provided in accordance with the manufacturer's instructions for the pollution control unit and the requirements of Section 306.

11. Wash-down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains, shall be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.

12. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.

13. Duct connections to pollution-control units shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the unit's inlet and outlet openings.

14. Extra-heavy-duty appliance exhaust systems shall not be connected to pollution-control units except where such units are specifically designed and listed for use with solid fuels.

15. Pollution-control units shall be maintained in accordance with the manufacturer's instructions.

(M8485/M52-18 AS)

**Add new text as follows:**

## 504.6 Booster fans prohibited. Domestic booster fans shall not be installed in dryer exhaust systems.

(M8486/M53-18 Part I AS))

**Revise as follows:**

## 506.3.7 Prevention of grease accumulation in grease ducts. Duct systems serving a Type I hood shall be constructed and installed so that grease cannot collect in any portion thereof, and the system shall slope not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) toward the hood or toward a grease reservoir designed and installed in accordance with Section 506.3.7.1. Where horizontal ducts exceed 75 feet (22 860 mm) in length, the slope shall be not less than one unit vertical in 12 units horizontal (8.3-percent slope).

**Exception:** Factory-built grease ducts shall be installed at a slope that is in accordance with the listing and manufacturer's installation instructions.

(M8491/M54-18 AS)

**Revise as follows:**

## 514.2 Prohibited applications. Energy recovery ventilation systems shall not be used in the following systems:

1. Hazardous exhaust systems covered in Section 510.

2. Dust, stock and refuse systems that convey explosive or flammable vapors, fumes or dust.

3. Smoke control systems covered in Section 513.

4. Commercial kitchen exhaust systems serving Type I ~~or Type II~~ hoods.

5. Clothes dryer exhaust systems covered in Section 504.

**Exception:** The application of ERV equipment that recovers sensible heat only utilizing coil-type heat exchangers shall not be limited by this section.

(M8492/M58-18 AS)

**Add new text as follows:**

## 504.4.2 Termination location. Exhaust duct terminations shall be in accordance with the dryer manufacturer's installation instructions. Where the manufacturer's instructions do not specify a termination location, the exhaust duct shall terminate not less than 3 feet (914 mm) in any direction from openings into buildings including openings in ventilated soffits.

(M8493/M59-18 AS)

**Revise as follows:**

## 510.6.5 Makeup air. Makeup air from all sources shall be provided during operations at a rate approximately equal to the rate that air is exhausted by the hazardous exhaust system. Makeup air shall be provided by gravity or mechanical means or both. Mechanical makeup air systems shall be automatically controlled to start and operate simultaneously with the exhaust system. The makeup air shall not reduce the effectiveness of the exhaust system. Makeup air intakes shall be located in accordance with Section 401.4.

(M8476/M43-18 AS)

**SECTION 511
DUST, STOCK AND REFUSE CONVEYING SYSTEMS**

**Revise as follows:**

**511.1 Dust, stock and refuse conveying systems.**Dust, stock and refuse conveying systems shall comply with the provisions of Section 510 and Sections 511.1.1 through 511.2 and the Florida Fire Perevention Code.

**511.1.1 Collectors and separators.**Collectors and separators involving such systems as centrifugal separators, bag filter systems and similar devices, and associated supports shall be constructed of noncombustible materials and shall be located on the exterior of the building or structure. A collector or separator shall not be located nearer than 10 feet (3048 mm) to combustible construction or to an unprotected wall or floor opening, unless the collector is provided with a metal vent pipe that extends above the highest part of any roof with a distance of 30 feet (9144 mm).

**Exceptions:**

1. Collectors such as “Point of Use” collectors, close extraction weld fume collectors, spray finishing booths, stationary grinding tables, sanding booths, and integrated or machine-mounted collectors shall be permitted to be installed indoors provided that the installation is in accordance with the International Fire Code and NFPA 70.

2. Collectors in independent exhaust systems handling combustible dusts shall be permitted to be installed indoors provided that such collectors are installed in compliance with the International Fire Code and NFPA 70.

**511.1.5 Explosion ~~relief vents~~ control.**~~A safety or explosion relief vent~~Explosion control shall be provided in accordance with the requirements of the Florida Fire Prevention Code on all systems that convey combustible dust or combustible refuse or stock~~of an explosive nature,~~that produces combustible dusts in such a manner that the concentration and conditions could create a fire or explosion hazard. Determination of concentrations or conditions that are deemed to not create a fire or explosion hazard shall be based on a Dust Hazard Analysis prepared in accordance with ~~the requirements Section 2203.2 of~~ the Florida ~~Building~~ Fire Prevention Code.

 (M8494/M62-18 AMPC1)

**CHAPTER 6 DUCT SYSTEMS**

**Revise as follows:**

## 602.2 Construction. Plenum enclosure construction materials that are exposed to the airflow shall comply with the requirements of Section 703.5 of the International Building Code or such materials shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 50 when tested in accordance with ASTM E84 or UL 723.

The use of gypsum boards to form plenums shall be limited to systems where the air temperatures do not exceed 125ºF (52ºC) and the building and mechanical system design conditions are such that the gypsum board surface temperature will be maintained above the airstream dew-point temperature. ~~Air~~ Supply air plenums formed by gypsum boards shall not be incorporated in air-handling systems utilizing direct evaporative ~~coolers~~ cooling systems.

##

## 603.5.1 Gypsum ducts. The use of gypsum boards to form air shafts (ducts) shall be limited to return air systems where the air temperatures do not exceed 125ºF (52ºC) and the gypsum board surface temperature is maintained above the airstream dew-point temperature. ~~Air~~ Supply air ducts formed by gypsum boards shall not be incorporated in air-handling systems utilizing direct evaporative ~~coolers~~ cooling systems.

(M8499/M63-18 AS)

**Revise as follows:**

##

## 602.2.1.8 Pipe and duct insulation within plenums. Pipe and duct insulation contained within plenums, including insulation adhesives, shall have a flame spread index of not more than 25 and a smoke developed index of not more than 50 when tested in accordance with ASTM E84 or UL 723, using the specimen preparation and mounting procedures of ASTM E2231. Pipe and duct insulation shall not flame, glow, smolder or smoke when tested in accordance with ASTM C411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F(121°C). Pipe and duct insulation shall be listed and labeled. Pipe and duct insulation shall not be used to reduce the maximum flame spread and smoke-developed indeces except where **the pipe or duct and its related insulation, coatings, and adhesives are** tested as a composite assembly **in accordance with section 602.2.1.7.**

(M8501/M71-18 AM)

**Revise as follows:**

## 604.3 Coverings and linings. ~~Coverings~~ Duct coverings and linings, including adhesives where used, shall have a flame spread index not more than 25 and a smoke-developed index not more than 50, when tested in accordance with ASTM E84 or UL 723, using the specimen preparation and mounting procedures of ASTM E2231. Duct coverings and linings shall not flame, glow, smolder or smoke when tested in accordance with ASTM C411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C). Coverings and linings shall be listed and labeled.

**Exception:** Polyurethane foam insulation that is spray applied to the exterior of ducts in attics and crawlspaces shall be subject to all of the following requirements:

1. The foam plastic insulation shall have a flame spread index not greater than 25 and a smoke developed index not greater than 450, when tested in accordance with ASTM E84 or UL 723, using the specimen preparation and mounting procedures of ASTM E2231.

2. The foam plastic insulation shall not flame, glow, smolder or smoke when tested in accordance with ASTM C411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250°F (121°C).

3. The foam plastic insulation complies with the requirements of Section 2603 of the International Building Code.

4. The foam plastic insulation is protected against ignition in accordance with the requirements of Section 2603.4.1.6 of the International Building Code.

(M8506/M74-18 AS)

**Add new text as follows:**

**SECTION 608 BALANCING**

## 608.1 Balancing. Air distribution, ventilation and exhaust systems shall be provided with means to adjust the system to achieve the design airflow rates and shall be balanced by an approved method. Ventilation air distribution shall be balanced by an approved method and such balancing shall verify that the air distribution system is capable of supplying and exhausting the airflow rates required by Chapter 4.

(M8457/M29-18 AS)

 **CHAPTER 7 COMBUSTION AIR**

No change

**CHAPTER 8 CHIMNEYS AND VENTS**

**Add new text as follows:**

**801.21 Blocked vent switch.** Oil-fired *appliances* shall be equipped with a device that will stop burner operation in the event that the venting system is obstructed. Such device shall have a manual reset and shall be installed in accordance with the manufacturer's instructions.

(M8507/M80-18 AM)

**CHAPTER 9 SPECIFIC APPLIANCES, FIREPLACES AND SOLID FUEL-BURNING EQUIPMENT**

**Revise as follows:**

905.1 General. Fireplace stoves and solid-fuel-type room heaters shall be listed and labeled and shall be installed in accordance with the conditions of the listing. Fireplace stoves shall be tested in accordance with UL 737. Solid-fuel-type room heaters shall be tested in accordance with UL 1482. Fireplace inserts intended for installation in fireplaces shall be listed and labeled in accordance with the requirements of UL 1482 and shall be installed in accordance with the manufacturer's instructions. New Wood Burning Residential Hydronic Heaters shall be EPA certified.

(M8509/M83-18 AS)

**Revise as follows:**

## 908.1 General. A cooling tower used in conjunction with an air-conditioning appliance shall be installed in accordance with the manufacturer's instructions. Factory-built cooling towers shall be listed in accordance with UL 1995, or UL/CSA 60335-2-40.

Note: Already in the FBC-M

**Revises as follows:**

## 916.1 General. Pool and spa heaters shall be installed in accordance with the manufacturer's instructions. Oil-fired pool and spa heaters shall be tested in accordance with UL 1261. Pool and spa heat pump water heaters shall comply with UL 1995, or UL/CSA 60335-2-40, or CSA C22.2 No. 236.

**Exception:** Portable residential spas and portable residential exercise spas shall comply with UL 1563 or CSA C22.2 No. 218.1.

## 918.1 Forced-air furnaces. Oil-fired furnaces shall be tested in accordance with UL 727. Electric furnaces shall be tested in accordance with UL 1995~~.~~ or UL/CSA 60335-2-40. Solid fuel furnaces shall be tested in accordance with UL 391. Forced-air furnaces shall be installed in accordance with the listings and the manufacturer's instructions.

## 918.2 Heat pumps. Electric heat pumps shall be tested in accordance with UL 1995, or UL/CSA 60335-2-40.

Note: Already in the FBC-M.

(M8514/M86-18 Part I AS)

**908.4 Support and anchorage.**Supports for cooling towers, evaporative condensers and fluid coolers shall be designed in accordance with the *Florida Building Code, Building*. ~~Seismic restraints shall be as required by the~~*~~Florida Building Code, Building~~*~~.~~

**(M9999 AS)**

## SECTION 920 UNIT HEATERS

## 920.1 General. Unit heaters shall be installed in accordance with the listing and the manufacturer's instructions. Oil-fired unit heaters shall be tested in accordance with UL 731.

## 920.2 Support. Suspended-type unit heaters shall be supported by elements that are designed and constructed to accommodate the weight and dynamic loads. Hangers and brackets shall be of noncombustible material. Suspended-type oil-fired unit heaters shall be installed in accordance with NFPA 31.

##

## 920.3 Ductwork. A unit heater shall not be attached to a warm-air duct system unless listed for such installation.

**Add new text as follows:**

## 920.4 Prohibited Uses. In Group I-2 and ambulatory care facilities, suspended-type unit heaters are prohibited in corridors, exit access stairways and ramps, exit stairways and ramps and patient sleeping areas.

(M8508/M81-18 AS)

**Add new text as follows:**

## SECTION 929 UNVENTED ALCOHOL FUEL BURNING DECORATIVE APPLIANCES

## 929.1 GENERAL. Unvented alcohol fuel-burning decorative appliances shall be listed and labeled in accordance with UL1370 and shall be installed in accordance with the conditions of the listing, manufacturer's installation instructions, and Chapter 3.

Renumber remaining sections as appropriate

(M8513/M85-18 AS)

**CHAPTER 10 BOILERS, WATER HEATERS**

**AND PRESSURE VESSELS**

**Revise as follows:**

## 1004.1 Standards. Boilers shall be designed, constructed and certified in accordance with the ASME Boiler and Pressure Vessel Code, Section I or IV. Controls and safety devices for boilers with fuel input ratings of less than 12,500,000 Btu/hr (3,662,500 W) ~~or less~~ shall meet the requirements of ASME CSD-1. Controls and safety devices for boilers with inputs greater than or equal to 12,500,000 Btu/hr (3,662,500 W) shall meet the requirements of NFPA 85. Packaged oil-fired boilers shall be listed and labeled in accordance with UL 726. Packaged electric boilers shall be listed and labeled in accordance with UL 834. Solid-fuel-fired boilers shall be listed and labeled in accordance with UL 2523.

(M8516/M87-18 AS)

**CHAPTER 11 REFRIGERATION**

**Revise:**

## 1101.2 Factory-built equipment and appliances. Listed and labeled self-contained, factory-built equipment and appliances shall be tested in accordance with UL 207, UL 412, UL 471 ~~or~~ ~~1995~~, UL1995, UL/CSA 60335-2-40, or UL 60335-2-89. Such equipment and appliances are deemed to meet the design, manufacture and factory test requirements of this code if installed in accordance with their listing and the manufacturer's instructions.

(M8514/M86-18 Part I AS))

**CHAPTER 12 HYDRONIC PIPING**

**Revise as follows:**

**TABLE 1202.4**

**HYDRONIC PIPE**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Acrylonitrile butadiene styrene (ABS) plastic pipe | ASTM D1527; ASTM F2806 |
| Chlorinated polyvinyl chloride (CPVC) plastic pipe | ASTM D2846; ASTM F441; ASTM F442 |
| Chlorinated Polyvinyl Chloride/Aluminum/Chlorinated Polyvinyl Chloride (CPVC/AL/CPVC) | ASTM F2855 |
| Copper or copper-alloy pipe | ASTM B42; ASTM B43; ASTM B302 |
| Copper or copper-alloy tube (Type K, L or M) | ASTM B75; ASTM B88; ASTM B135; ASTM B251 |
| Cross-linked polyethylene/ aluminum/cross-linked polyethylene (PEX-AL-PEX) pressure pipe | ASTM F1281; CSA CAN/CSA-B-137.10 |
| Cross-linked polyethylene (PEX) tubing | ASTM F876 |
| Ductile iron pipe | AWWA C115/A21.15; AWWA C151/A21.51 |
| Lead pipe | FS WW-P-325B |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe | ASTM F1282; CSA B137.9 |
| Polypropylene (PP) plastic pipe | ASTM F2389 |
| Polyvinyl chloride (PVC) plastic pipe | ASTM D1785; ASTM D2241 |
| Raised temperature polyethylene (PE-RT) | ASTM F2623; ASTM F2769; CSA B137.18 |
| Steel pipe | ASTM A53; ASTM A106 |
| Steel tubing | ASTM A254 |

**TABLE 1202.5**

**HYDRONIC PIPE FITTINGS**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Copper and copper alloys | ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.26; ASME B16.24; ASME B16.51; ASSE 1061; ASTM F1974 |
| Ductile iron and gray iron | ANSI/AWWA C110/A21.10; AWWA C153/A21.53; ASTM A395; ASTM A536; ASTM F1476; ASTM F1548 |
| Ductile iron | ANSI/AWWA C153/A21.53 |
| Gray iron | ASTM A126 |
| Malleable iron | ASME B16.3 |
| PE-RT fittings | ASSE 1061; ASTM D3261; ASTM F1807; ASTM F2098; ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.1; CSA B137.18 |
| PEX fittings | ASSE 1061; ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2159 |
| Plastic | ASTM D2466; ASTM D2467; ASTM D2846; ASTM F438; ASTM F439; ASTM F877; ASTM F2389; ASTM F2735 |
| Steel | ASME B16.5; ASME B16.9; ASME B16.11; ASME B16.28; ASTM A53; ASTM A106; ASTM A234; ASTM A395; ASTM A420; ASTM A536; ASTM F1476; ASTM F1548 |

**1203.3.4 Solvent-cemented joints.** Joint surfaces shall be clean and free of moisture. An approved primer shall be applied to CPVC and PVC pipe-joint surfaces. Joints shall be made while the cement is wet. Solvent cement conforming to the following standards shall be applied to all joint surfaces:

1. ASTM D2235 for ABS joints.

2. ASTM F493 for CPVC joints.

3. ASTM D2564 for PVC joints.

CPVC joints shall be made in accordance with ASTM D2846.

**Exception:** For CPVC pipe joint connections, a primer is not required where all of the following conditions apply:

1. The solvent cement used is third-party certified as conforming to ASTM F493.

2. The solvent cement is yellow in color.

3. The solvent cement is used only for joining 1/2-inch (12.7 mm) through 2-inch (51 mm) diameter CPVC pipe and fittings.

4. The CPVC pipe ~~and~~or fittings are manufactured in accordance with ASTM D2846.​​​​​​​

**Add new text as follows:**

**1203.10 CPVC/AL/CPVC plastic pipe.** Joints between CPVC/AL/CPVC plastic pipes or fittings shall be mechanical, solvent-cemented or threaded joints conforming to Section 1203.3

**Revise as follows:**

**~~1203.10~~ 1203.11 Polybutylene plastic pipe and tubing.** Joints between polybutylene plastic pipe and tubing or fittings shall be mechanical joints conforming to Section 1203.3 or heat-fusion joints conforming to Section ~~1203.8.1.~~1203.10.1.

**~~1203.10.1~~ 1203.11.1 Heat-fusion joints.** Joints shall be of the socket-fusion or butt-fusion type. Joint surfaces shall be clean and free of moisture. Joint surfaces shall be heated to melt temperatures and joined. The joint shall be undisturbed until cool. Joints shall be made in accordance with ASTM D3309.

Renumber remaining section as appropriate

(M8524/M103-18 AS)

**Revise as follows:**

**1203.9 CPVC plastic pipe.** Joints between CPVC plastic pipe or fittings shall be mechanical, solvent-cemented or threaded joints conforming to Section 1203.3.

(M8540/M116-18 AS)

**Revise as follows:**

**TABLE 1202.4**

**HYDRONIC PIPE**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Acrylonitrile butadiene styrene (ABS) plastic pipe | ASTM D1527; ASTM F2806 |
| Chlorinated polyvinyl chloride (CPVC) plastic pipe | ASTM D2846; ASTM F441; ASTM F442 |
| Copper or copper-alloy pipe | ASTM B42; ASTM B43; ASTM B302 |
| Copper or copper-alloy tube (Type K, L or M) | ASTM B75; ASTM B88; ASTM B135; ASTM B251 |
| Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pressure pipe | ASTM F1281; CSA CAN/CSA-B-137.10 |
| Cross-linked polyethylene (PEX) tubing | ASTM F876; ASTM F3253 |
| Ductile iron pipe | AWWA C115/A21.15; AWWA C151/A21.51 |
| Lead pipe | FS WW-P-325B |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe | ASTM F1282; CSA B137.9 |
| Polypropylene (PP) plastic pipe | ASTM F2389 |
| Polyvinyl chloride (PVC) plastic pipe | ASTM D1785; ASTM D2241 |
| Raised temperature polyethylene (PE-RT) | ASTM F2623; ASTM F2769; CSA B137.18 |
| Steel pipe | ASTM A53; ASTM A106 |
| Steel tubing | ASTM A254 |

**TABLE 1202.5**

**HYDRONIC PIPE FITTINGS**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Copper and copper alloys | ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.26; ASME B16.24; ASME B16.51; ASSE 1061; ASTM F1974 |
| Ductile iron and gray iron | ANSI/AWWA C110/A21.10; AWWA C153/A21.53; ASTM A395; ASTM A536; ASTM F1476; ASTM F1548 |
| Ductile iron | ANSI/AWWA C153/A21.53 |
| Gray iron | ASTM A126 |
| Malleable iron | ASME B16.3 |
| PE-RT fittings | ASSE 1061; ASTM D3261; ASTM F1807; ASTM F2098; ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.1; CSA B137.18 |
| PEX fittings | ASSE 1061; ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2159; ASTM F3253 |
| Plastic | ASTM D2466; ASTM D2467; ASTM F438; ASTM F439; ASTM F877; ASTM F2389; ASTM F2735 |
| Steel | ASME B16.5; ASME B16.9; ASME B16.11; ASME B16.28; ASTM A53; ASTM A106; ASTM A234; ASTM A395; ASTM A420; ASTM A536; ASTM F1476; ASTM F1548 |

(M8526/M104-18 AS)

**Revise as follows:**

**TABLE 1202.5**

**HYDRONIC PIPE FITTINGS**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Copper and copper alloys | ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.26; ASME B16.24; ASME B16.51; ASSE 1061; ASTM F1974 |
| CPVC | ASSE 1061; ASTM D2846; ASTM F438; ASTM F439 |
| Ductile iron and gray iron | ANSI/AWWA C110/A21.10; AWWA C153/A21.53; ASTM A395; ASTM A536; ASTM F1476; ASTM F1548 |
| Ductile iron | ANSI/AWWA C153/A21.53 |
| Gray iron | ASTM A126 |
| Malleable iron | ASME B16.3 |
| PE-RT fittings | ASSE 1061; ASTM D3261; ASTM F1807; ASTM F2098; ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.1; CSA B137.18 |
| PEX fittings | ASSE 1061; ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2159 |
| Plastic | ASTM D2466; ASTM D2467; ~~ASTM F438; ASTM F439;~~ ASTM F877; ASTM F2389; ASTM F2735 |
| Steel | ASME B16.5; ASME B16.9; ASME B16.11; ASME B16.28; ASTM A53; ASTM A106; ASTM A234; ASTM A395; ASTM A420; ASTM A536; ASTM F1476; ASTM F1548 |

(M8528/M106-18 AM)

**Revise as follows:**

**TABLE 1210.4**

**GROUND-SOURCE LOOP PIPE**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Chlorinated polyvinyl chloride (CPVC) | ASTM D2846; ASTM F441; ASTM F442 |
| Cross-linked polyethylene (PEX) | ASTM F876; CSA B137.5; CSA C448 |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe | ASTM F1282; CSA B137.9 |
| High-density polyethylene (HDPE) | ASTM D2737; ASTM D3035; ASTM F714; AWWA C901; CSA B137.1; CSA C448; NSF 358-1 |
| Polypropylene (PP-R) | ASTM F2389; CSA B137.11; NSF 358-2 |
| Polyvinyl chloride (PVC) | ASTM D1785; ASTM D2241 |
| Raised temperature polyethylene (PE-RT) | ASTM F2623; ASTM F2769; CSA B137.18; CSA C448 |

**TABLE 1210.5**

**GROUND-SOURCE LOOP PIPE FITTINGS**

|  |  |
| --- | --- |
| PIPE MATERIAL | STANDARD (see Chapter 15) |
| Chlorinated polyvinyl chloride (CPVC) | ASTM D2846; ASTM F437; ASTM F438; ASTM F439; CSA B137.6 |
| Cross-linked polyethylene (PEX) | ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2159; ASTM F2434; CSA B137.5; CSA 448 |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) | ASTM F1282; ASTM F2434; CSA B137.9 |
| High Density Polyethylene (HDPE) | ASTM D2683; ASTM D3261; ASTM F1055; CSA B137.1; CSA C448; CSA 448; NSF 358-1 |
| Polypropylene (PP-R) | ASTM F2389; CSA B137.11; NSF 358-2 |
| Polyvinyl chloride (PVC) | ASTM D2464 ; ASTM D2466 ; ASTM D2467 ; CSA B137.2 ; CSA B137.3 |
| Raised temperature polyethylene (PE-RT) | ASTM D3261; ASTM F1807; ASTM F2098;ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.1; CSA B137.18 ; CSA 448 |

**1210.8 Installation.** Piping, valves, fittings, and connections shall be installed in accordance with ANSI/CSA/IGSHPA C448 and the conditions of approval.

(M8533/M109-18 AS)

**TABLE 1210.4**

**GROUND-SOURCE LOOP PIPE**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Chlorinated polyvinyl chloride (CPVC) | ASTM D2846; ASTM F441; ASTM F442 |
| Cross-linked polyethylene (PEX) | ASTM F876; CSA B137.5 |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe | ASTM F1282; CSA B137.9 |
| High-density polyethylene (HDPE) | ASTM D2737; ASTM D3035; ASTM F714; AWWA C901; CSA B137.1; CSA C448; NSF 358-1 |
| Polypropylene (PP-R) | ASTM F2389; CSA B137.11; NSF 358-2 |
| Polyvinyl chloride (PVC) | ASTM D1785; ASTM D2241 |
| Raised temperature polyethylene (PE-RT) | ASTM F2623; ASTM F2769; CSA B137.18; NSF 358-4 |

**TABLE 1210.5**

**GROUND-SOURCE LOOP PIPE FITTINGS**

|  |  |
| --- | --- |
| **PIPE MATERIAL** | **STANDARD (see Chapter 15)** |
| Chlorinated polyvinyl chloride (CPVC) | ASTM D2846; ASTM F437; ASTM F438; ASTM F439; CSA B137.6 |
| Cross-linked polyethylene (PEX) | ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2159; ASTM F2434; CSA B137.5 |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) | ASTM F1282; ASTM F2434; CSA B137.9 |
| High Density Polyethylene (HDPE) | ASTM D2683; ASTM D3261; ASTM F1055; CSA B137.1; CSA C448; NSF 358-1 |
| Polypropylene (PP-R) | ASTM F2389; CSA B137.11; NSF 358-2 |
| Polyvinyl chloride (PVC) | ASTM D2464; ASTM D2466; ASTM D2467; CSA B137.2; CSA B137.3 |
| Raised temperature polyethylene (PE-RT) | ASTM D3261; ASTM F1807; ASTM F2098; ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.1; CSA B137.18, NSF 358-4 |

(M8537/M112-18 AS)

**Revise as follows:**

**TABLE 1210.4**

**GROUND-SOURCE LOOP PIPE**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Chlorinated polyvinyl chloride (CPVC) | ASTM D2846; ASTM F441; ASTM F442 |
| Cross-linked polyethylene (PEX) | ASTM F876; CSA B137.5; NSF 358-3 |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe | ASTM F1282; CSA B137.9 |
| High-density polyethylene (HDPE) | ASTM D2737; ASTM D3035; ASTM F714; AWWA C901; CSA B137.1; CSA C448; NSF 358-1 |
| Polypropylene (PP-R) | ASTM F2389; CSA B137.11; NSF 358-2 |
| Polyvinyl chloride (PVC) | ASTM D1785; ASTM D2241 |
| Raised temperature polyethylene (PE-RT) | ASTM F2623; ASTM F2769; CSA B137.18 |

**TABLE 1210.5**

**GROUND-SOURCE LOOP PIPE FITTINGS**

|  |  |
| --- | --- |
| **PIPE MATERIAL** | **STANDARD (see Chapter 15)** |
| Chlorinated polyvinyl chloride (CPVC) | ASTM D2846; ASTM F437; ASTM F438; ASTM F439; CSA B137.6 |
| Cross-linked polyethylene (PEX) | ASTM F877; ASTM F1807; ASTM F1960; ASTM F2080; ASTM F2159; ASTM F2434; CSA B137.5; NSF 358-3 |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) | ASTM F1282; ASTM F2434; CSA B137.9 |
| High Density Polyethylene (HDPE) | ASTM D2683; ASTM D3261; ASTM F1055; CSA B137.1; CSA C448; NSF 358-1 |
| Polypropylene (PP-R) | ASTM F2389; CSA B137.11; NSF 358-2 |
| Polyvinyl chloride (PVC) | ASTM D2464; ASTM D2466; ASTM D2467; CSA B137.2; CSA B137.3 |
| Raised temperature polyethylene (PE-RT) | ASTM D3261; ASTM F1807; ASTM F2098; ASTM F2159; ASTM F2735; ASTM F2769; CSA B137.1; CSA B137.18 |

(M8538/M1113-18 AS)

**Revise as follows:**

**TABLE 1202.4**

**HYDRONIC PIPE**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Acrylonitrile butadiene styrene (ABS) plastic pipe | ASTM D1527; ASTM F2806 |
| Chlorinated polyvinyl chloride (CPVC) plastic pipe | ASTM D2846; ASTM F441; ASTM F442 |
| Copper or copper-alloy pipe | ASTM B42; ASTM B43; ASTM B302 |
| Copper or copper-alloy tube (Type K, L or M) | ASTM B75; ASTM B88; ASTM B135; ASTM B251 |
| Cross-linked polyethylene/aluminum/cross-linked polyethylene (PEX-AL-PEX) pressure pipe | ASTM F1281; CSA CAN/CSA-B-137.10 |
| Cross-linked polyethylene (PEX) tubing | ASTM F876; CSA B137.5 |
| Ductile iron pipe | AWWA C115/A21.15; AWWA C151/A21.51 |
| Lead pipe | FS WW-P-325B |
| Polyethylene/aluminum/polyethylene (PE-AL-PE) pressure pipe | ASTM F1282; CSA B137.9 |
| Polypropylene (PP) plastic pipe | ASTM F2389 |
| Polyvinyl chloride (PVC) plastic pipe | ASTM D1785; ASTM D2241 |
| Raised temperature polyethylene (PE-RT) | ASTM F2623; ASTM F2769; CSA B137.18 |
| Steel pipe | ASTM A53; ASTM A106 |
| Steel tubing | ASTM A254 |

(M8539/M114-18 AS)

**Revise as follows:**

**1210.6.2 Preparation of pipe ends.** Pipe shall be cut square~~, be reamed,~~ and be free of burrs and obstructions. ~~CPVC, PE, and PVC pipe shall be chamfered.~~ Pipe ends shall have full-bore openings and shall ~~not be undercut.~~be prepared in accordance with manufacturer's instructions.

(M8541/M117-18 AS)

**Revise as follows:**

**1210.8 Installation.** Piping, valves, fittings, and connections shall be installed in accordance with the ~~conditions of approval~~ manufacturer's instructions.

(M8542/M118-18 AS)

**CHAPTER 13 FUEL OIL PIPING AND STORAGE**

**SECTION 1301
GENERAL**

**1301.1 Scope.** This chapter shall govern the design, installation, construction and repair of fuel-oil storage and piping systems. The storage of fuel oil and flammable and combustible liquids shall be in accordance with Chapters 6 and 57 of the International Fire Code.

**1301.2 Storage and piping systems.** Fuel-oil storage systems shall comply with Section 603.3 of the International Fire Code. Fuel-oil piping systems shall comply with the requirements of this code.

**1301.3 Fuel type.** An appliance shall be designed for use with the type of fuel to which it will be connected. Such appliance shall not be converted from the fuel specified on the rating plate for use with a different fuel without securing reapproval from the code official.

**Revise as follows:**

**1301.4 Fuel tanks, piping, fittings and valves.** The tank, piping, fittings and valves for appliances burning oil shall be installed in accordance with the requirements of this chapter. Where an oil burner is served by a tank, any part of which is above the level of the burner inlet connection and where the fuel supply line is taken from the top of the tank, an approved antisiphon valve or other siphon-breaking device shall be installed in lieu of the shutoff valve.

**1301.5 Tanks abandoned or removed.** All exterior above-grade fill piping shall be removed when tanks are abandoned or removed. Tank abandonment and removal shall be in accordance with Section 5704.2.13 of the International Fire Code.

**SECTION 1302
MATERIAL**

**1302.1 General.** Piping materials shall conform to the standards cited in this section.

**1302.2 Rated for system.** All materials shall be rated for the operating temperatures and pressures of the system, and shall be compatible with the type of liquid.

**TABLE 1302.3**

**FUEL OIL PIPING AND FITTINGS**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD (see Chapter 15)** |
| Copper or copper-alloy pipe and fittings | ASTM B42; ASTM B43; ASTM B302; ASTM F3226 |
| Copper or copper-alloy tubing and fittings (Type K, L or M) | ASTM B75; ASTM B88; ASTM B280; ASME B16.51; ASTM F3226 |
| Labeled pipe | (See Section 1302.4) |
| Nonmetallic pipe | ASTM D2996 |
| Steel and Stainless Steel pipe and fittings | ASTM A53; ASTM A106; ASTM A312; ASTM F3226 |
| Steel and Stainless Steel tubing and fittings | ASTM A254; ASTM A539; ASTM A269; ASTM F3226 |

**1302.3 Pipe standards.** Fuel oil pipe shall comply with one of the standards listed in Table 1302.3.

**1302.4 Nonmetallic pipe.** Nonmetallic pipe shall be listed and labeled as being acceptable for the intended application for flammable and combustible liquids. Nonmetallic pipe shall be installed only outdoors, underground.

**1302.5 Fittings and valves.** Fittings and valves shall be approved for the piping systems, and shall be compatible with, or shall be of the same material as, the pipe or tubing.

**1302.6 Bending of pipe.** Pipe shall be approved for bending. Pipe bends shall be made with approved equipment. The bend shall not exceed the structural limitations of the pipe.

**1302.7 Pumps.** Pumps that are not part of an appliance shall be of a positive-displacement type. The pump shall automatically shut off the supply when not in operation. Pumps shall be listed and labeled in accordance with UL 343.

**1302.8 Flexible connectors and hoses.** Flexible connectors and hoses shall be listed and labeled as being acceptable for the intended application for flammable and combustible liquids ~~in accordance with UL 536~~.

**SECTION 1303
JOINTS AND CONNECTIONS**

**1303.1 Approval.** Joints and connections shall be approved and of a type approved for fuel-oil piping systems. Threaded joints and connections shall be made tight with suitable lubricant or pipe compound. Unions requiring gaskets or packings, right or left couplings, and sweat fittings employing solder having a melting point of less than 1,000°F (538°C) shall not be used in oil lines. Cast-iron fittings shall not be used. Joints and connections shall be tight for the pressure required by test.

**1303.1.1 Joints between different piping materials.** Joints between different piping materials shall be made with approved adapter fittings. Joints between different metallic piping materials shall be made with approved dielectric fittings or copper-alloy converter fittings.

**1303.2 Preparation of pipe ends.** Pipe shall be cut square, reamed and chamfered and be free from all burrs and obstructions. Pipe ends shall have full-bore openings and shall not be undercut.

**1303.3 Joint preparation and installation.** Where required by Sections 1303.4 through 1303.9, the preparation and installation of brazed, mechanical, threaded, press-connect and welded joints shall comply with Sections 1303.3.1 through ~~1303.3.4.~~1303.3.5.

**1303.3.1 Brazed joints.** All joint surfaces shall be cleaned. An approved flux shall be applied where required. The joints shall be brazed with a filler metal conforming to AWS A5.8.

**1303.3.2 Mechanical joints.** Mechanical joints shall be installed in accordance with the manufacturer's instructions. ~~Press-connect joints shall conform to one of the standards listed in Table 1302.3.~~

**1303.3.3 Threaded joints.** Threads shall conform to ASME B1.20.1. Pipe-joint compound or tape shall be applied on the male threads only.

**1303.3.4 Welded joints.** All joint surfaces shall be cleaned by an approved procedure. The joint shall be welded with an approved filler metal.

**1303.3.5 Press-Connect joints.** Press-Connect joints shall be installed in accordance with the manufacturer's instructions and shall conform to one of the standards listed in Table 1302.3.

**1303.6 Copper or copper-alloy pipe.** Joints between copper or copper-alloy pipe or fittings shall be brazed, mechanical, threaded, press-connect or welded joints complying with Section 1303.3.

**1303.7 Copper or copper-alloy tubing.** Joints between copper or copper-alloy tubing or fittings shall be brazed, mechanical ~~joints complying with Section 1303.3~~, or press-connect joints ~~that conform to one of the standards in Table 1302.3 or flared joints. Flared joints shall be made by a tool designed for that operation~~ complying with Section 1303.3.

**1303.8 Nonmetallic pipe.** Joints between nonmetallic pipe or fittings shall be installed in accordance with the manufacturer's instructions for the labeled pipe and fittings.

**1303.9 Steel and Stainless Steel pipe.** Joints between steel or stainless steel pipe or fittings shall be threaded, press-connect or welded joints complying with Section 1303.3 or mechanical joints complying with Section 1303.7.1.

**1303.9.1 Mechanical joints.** Joints shall be made with an approved elastomeric seal. Mechanical joints shall be installed in accordance with the manufacturer's instructions. Mechanical joints shall be installed outdoors, underground, unless otherwise approved.

**1303.10 Steel and Stainless Steel tubing.** Joints between steel or stainless steel tubing or fittings shall be mechanical, press-connect or welded joints complying with Section 1303.3.

**1303.11 Piping protection.** Proper allowance shall be made for expansion, contraction, jarring and vibration. Piping other than tubing, connected to underground tanks, except straight fill lines and test wells, shall be provided with flexible connectors, or otherwise arranged to permit the tanks to settle without impairing the tightness of the piping connections.

 (M8549/M121-18 AM)

CHAPTER 14 SOLAR SYSTEMS

**Revise as follows:**

**1402.4.2 Rooftop-mounted solar thermal collectors and systems.** The roof shall be constructed to support the loads imposed by roof-mounted solar collectors. Where mounted on or above the roof covering, the collector array ~~and supporting construction~~, mounting systems and their attachments to the roof shall be constructed of noncombustible materials or fire-retardant-treated wood conforming to the International Building Code to the extent required for the type of roof construction of the building to which the collectors are accessory.

(M8550/M127-18 AM)

**Revise as follows:**

**1404.1 Collectors.** Factory-built solar thermal collectors shall bear a label showing the manufacturer's name and ~~address, model number and~~serial number or certification number…

(M8551/M128-18 AS)

Chapter 15 – Reference Standards

See attached